

ABSTRACT OF THE DISCLOSURE

An optical system has an optical fiber path suitable for propagating an optical signal at least in a first direction, and a plurality of optical line amplifiers disposed along the optical fiber path so as to divide the optical fiber path in spans of optical fiber. The spans of optical fiber have at least one transmission optical fiber having an effective length L_{eff} . An optical phase conjugation device is associated to one of the amplifiers of the plurality of amplifiers, and is disposed in combination with an optical fiber length having the same sign of dispersion of the transmission optical fiber and a higher dispersion coefficient at a wavelength of the optical signal. The additional accumulated dispersion introduced by the optical fiber length is nearly equal to the dispersion accumulated in an effective length L_{eff} of transmission fiber. A further optical amplifier is associated to the optical fiber length.